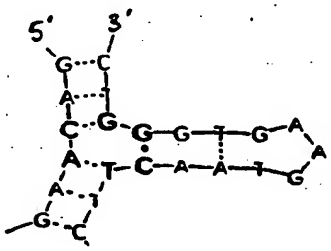
What is claimed:

1. A composition comprising an oligonucleotide which comprises consecutive nucleotides having the sequences set forth in SEQ ID NO:1 and SEQ ID NO:2, wherein SEQ ID NO:1 is located 5' to SEQ ID NO:2.

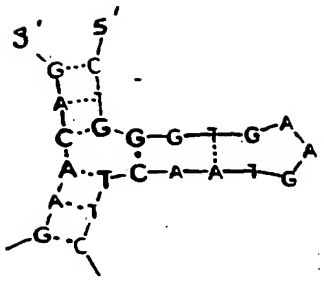
2. The oligonucleotide of claim 1, wherein the oligonucleotide folds so that the sequences set forth in SEQ ID NO:1 and SEQ ID NO:2 contained in the oligonucleotide are arranged as set forth in the following structure:



3. The oligonucleotide of claim 1, wherein the oligonucleotide comprises consecutive nucleotides having the sequence set forth in SEQ ID NO:152, wherein SEQ ID NO:152 is located 3' to SEQ ID NO:1 and 5' to SEQ ID NO:2.

4. A composition comprising an oligonucleotide which comprises consecutive nucleotides having the sequences set forth in SEQ ID NO:101 and SEQ ID NO:102, wherein SEQ ID NO:101 is located 5' to SEQ ID NO:102.

5. The oligonucleotide of claim 4, wherein the oligonucleotide folds so that the sequences set forth in SEQ ID NO:101 and SEQ ID NO:102 contained in the oligonucleotide are arranged as set forth in the following structure:



6. The oligonucleotide of claim 4, wherein the oligonucleotide comprises consecutive nucleotides having the sequence set forth in SEQ ID NO:153, wherein SEQ ID NO:153 is located 3' to SEQ ID NO:101 and 5' to SEQ ID NO:102.

7. The composition of claim 1 or 4, wherein the oligonucleotide comprises a phosphorothioate group.

8. The oligonucleotide of claim 4, further comprising a fluorophore attached to a sulfur of the phosphorothioate group.

9. The oligonucleotide of claim 8, wherein the fluorophore is chosen from the group consisting of fluorescein, Oregon Green, JOE, HEX, TET Alexa Fluor, Rhodamine Green, eosin, erythroscein, and BODIPY related dye.

10. The oligonucleotide of claim 8, wherein the fluorophore is a fluorescein derivative.

11. The oligonucleotide of claim 10, wherein the fluorescein derivative comprises a substituent attached to an aromatic carbon of a fluorescein.

12. The oligonucleotide of claim 1 or 4, wherein the oligonucleotide is 25 to 120 nucleotides in length.

13. A method of detecting an analyte in a solution comprising:

(a) providing a composition comprising an oligonucleotide and a fluorescent moiety attached to the oligonucleotide, wherein the oligonucleotide undergoes a conformational change upon contact with the analyte and the fluorescent moiety undergoes a change of fluorescence upon the conformational change;

(b) quantitating the fluorescence of the fluorescent moiety of the composition in the absence of the analyte;

(c) subsequently contacting the composition with the solution containing the analyte;

(d) quantitating the fluorescence of the fluorescent moiety of the composition in contact with the solution containing the analyte; and

(e) comparing the fluorescence quantitated in step (b) with that quantitated in step (d),

wherein a change in the fluorescence quantitated in step (d) as compared with the fluorescence quantitated in step (b) indicates that the analyte is present in the solution.

14. A method of determining whether an amount of an analyte in a first solution is different to that of an amount of the analyte in a second solution comprising:

(a) providing a composition comprising an oligonucleotide and a fluorescent moiety attached to the oligonucleotide, wherein the oligonucleotide undergoes a conformational change upon contact with the analyte and the fluorescent moiety undergoes a change of fluorescence upon the conformational change;

(b) contacting the composition with the first solution containing the analyte;

(c) quantitating the fluorescence of the fluorescent moiety

of the composition;

(d) washing the composition to remove the first solution;

(e) contacting the composition with the second solution containing the analyte;

(f) quantitating the fluorescence of the fluorescent moiety of the composition; and

(g) comparing the fluorescence quantitated in step (f) with that quantitated in step (c),

wherein a change in the fluorescence quantitated in step (f) as compared with the fluorescence quantitated in step (c) indicates that the amount of the analyte in the first solution is different to the amount of the analyte in the second solution.

15. A method of quantitating an analyte in a solution comprising:

(a) providing a composition comprising an oligonucleotide and a fluorescent moiety attached to the oligonucleotide, wherein the oligonucleotide undergoes a conformational change upon contact with the analyte and the fluorescent moiety undergoes a change of fluorescence upon the conformational change;

(b) providing a predetermined relationship between the fluorescent moiety fluorescence and the analyte concentration;

(c) contacting the composition with the solution containing the analyte;

(d) quantitating the fluorescence of the fluorescent moiety of the composition in contact with the solution containing the analyte;

(e) quantitating the analyte in the solution from the fluorescence quantitated in step (d) and the predetermined relationship provided in step (b).

16. The method of claim 13, wherein two or more compositions are present.

17. A method of determining whether a first solution comprising a first analyte has an analyte composition different to that of a second solution comprising a second analyte comprising:

(a) providing a first composition comprising a first oligonucleotide and a first fluorescent moiety attached to the first oligonucleotide, and a second composition comprising a second oligonucleotide and a second fluorescent moiety attached to the second oligonucleotide, wherein each of the first and second oligonucleotides undergoes a conformational change upon contact with the first analyte and upon contact with the second analyte, and each of the fluorescent moieties undergoes a change of fluorescence upon the conformational change of the oligonucleotides upon contact with the first analyte and upon contact with the second analyte;

(b) contacting the first composition and second composition with the first solution containing the first analyte;

(c) quantitating the fluorescence of each of the fluorescent moieties;

(d) washing to remove the first solution;

(e) contacting the first composition and second composition with the second solution containing the second analyte;

(f) quantitating the fluorescence of each of the fluorescent moieties; and

(g) comparing the fluorescence quantitated in step (f) with that quantitated in step (c),

wherein a change in the fluorescence quantitated in step (f) as compared with the fluorescence quantitated in step (c)

indicates that the first solution containing the first analyte has an analyte composition different to that of the second solution containing the second analyte.

18. The method of claim 13, 14, 15, or 17 wherein the oligonucleotide comprises a phosphorothioate group and a fluorescence moiety attached to the sulfur of the phosphorothioate group.

19. The method of claim 17, wherein the first solution is a sample derived from a subject and the second solution is a reference solution.

20. The method of claim 17, wherein the second solution is a sample derived from a subject and the first solution is a reference solution.

21. The method of claim 17, further comprising providing in step (a) a third composition comprising a third oligonucleotide and a fluorescent moiety attached to the third oligonucleotide, wherein the third oligonucleotide undergoes a conformational change upon contact with the first analyte and upon contact with the second analyte, and which fluorescent moiety undergoes a change of fluorescence upon the conformational change.

22. The method of claim 21, further comprising providing in step (a) a fourth composition comprising a fourth oligonucleotide and a fluorescent moiety attached to the fourth oligonucleotide, wherein the fourth oligonucleotide undergoes a conformational change upon contact with the first analyte and upon contact with the second analyte, and which

fluorescent moiety undergoes a change of fluorescence upon the conformational change.

23. The method of claim 22, further comprising providing an xthcomposition comprising an xth oligonucleotide and a fluorescent moiety attached to the oligonucleotide, wherein x is between 4 and 3000, wherein the xth oligonucleotide undergoes a conformational change upon contact with the first analyte and upon contact with the second analyte, and which fluorescent moiety undergoes a change of fluorescence upon the conformational change.

24. The method of claim 17, 21, 22, or 23 wherein two or more analytes are present in each solution and each oligonucleotide undergoes a conformational change upon contact with each of the 2 or more analytes.

25. The method of claim 17, further comprising providing a predetermined relationship between fluorescence and analyte concentration for each analyte and determining the concentration of each analyte from the predetermined relationship.

26. The method of claim 13, 14, 15, or 17, wherein the solution is a sample of a bodily fluid obtained from a subject.

27. The method of claim 26, wherein the bodily fluid is blood, a blood product, urine, a urine product, saliva, a saliva product, or sweat.

28. The method of claim 26, wherein the subject is mammalian.

29. The method of claim 28, wherein the subject is human.

30. The method of claim 13, 14, 15, or 17, wherein the oligonucleotides have any of the structures set forth in Figures 1-10.

31. The method of claim 13, 14, 15, or 17, wherein each analyte is a molecule.

32. The method of claim 17, wherein the first and second analyte are molecules having the same molecular structure.

33. The method of claim 17, wherein the first and second analyte have a different molecular structure.

34. The method of claim 31, wherein the molecule is a steroid or an alkaloid.

35. The method of claim 35, wherein the steroid has a cholestane, androstane, or pregnane core.

36. The method of claim 35, wherein the steroid is bile acids, 17-keto steroid, 17-hydroxycorticosteroid analog, cortisone, corticosterone or a derivative thereof.

37. The method of claim 31, wherein the analyte is brucine, strychnine or a fullerene C60.

38. The method of claim 13, 14, 15, or 17, wherein the first solution contains more than one analyte.

39. The method of claim 13, 14, 15, or 17, wherein the second

solution contains more than one analyte.

40. The method of claim 13, 14, 15, or 17, wherein at least one composition is attached to a solid surface.

41. The method of claim 40, wherein the solid surface is a microchip, optical fiber, glass, a bead, a multi-well plate, a column, a membrane, or a matrix.